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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	)
	)
Riccardo CESARINI et al.	)
	)
Application Serial No.: 10/679,357	) Group Art Unit: 1733
	)
Filed: October 7, 2003	) Examiner: Maki, Steven D.
	)
For: HIGH PERFORMANCE TIRE FOR VEHICLES	) Confirmation No.: 3867
	)

Mail Stop Appeal Brief--Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

RESPONSE TO NOTICE OF NON-COMPLIANT APPEAL BRIEF (37 C.F.R. § 41.37)

In response to the Notice of Non-Compliant Appeal Brief mailed November 14, 2007, the period for response to which extends through December 14, 2007, Appellants submit an Amended Appeal Brief in accordance with 37 CFR 41.37(d). Specifically, the Status of Amendment section now states that the Amendment filed on November 2, 2006 was not entered and the Summary of Claimed Subject Matter section now "maps" independent claims 39, 58, 111, 130, 135, and 154 to the specification by page and line number. Accordingly, Appellants submit that this response corrects the alleged deficiencies in the original Appeal Brief filed on June 4, 2007, and request reconsideration of the Appeal Brief.

Please grant any extensions of time required to enter this response, and charge any additional required fees to our deposit account 06-0916.

Attachment to this Response: Amended Appeal Brief under 37 C.F.R. § 41.37

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: December 12, 2007

By: ______________________________
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Alexandria, VA 22313-1450

Sir:

AMENDED APPEAL BRIEF UNDER 37 C.F.R. § 41.37

In response to the Notification of Non-Compliant Appeal Brief dated November 14, 2007, and in support of the Notice of Appeal filed on November 2, 2006, Appellants submit the following Amended Appeal Brief in accordance with M.P.E.P. § 1205.03 and 37 C.F.R. § 41.37 to correct the alleged deficiencies in the original Appeal Brief filed June 4, 2007. The fee of $500.00 required under § 41.20(b)(2) was previously paid with the original Appeal Brief submitted on June 4, 2007.

Table of Contents

I. Real Party in Interest

Pirelli Pneumatici S.p.A is the assignee of record, as evidenced by the assignment recorded in the parent application, U.S. Patent Application No. 09/534,875, on April 10, 2000, at Reel 011026, Frame 0610. Pirelli Pneumatici S.p.A changed its company name to Pirelli Tyre S.p.A and as such, Pirelli Tyre S.p.A. is the real party in interest in this appeal.

II. Related Appeals and Interferences

Appellants, Appellants' undersigned legal representative, and the assignee know of no appeals, interferences, or proceedings that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. Status of Claims

Claims 39-62 and 111-158 are pending. Claims 1-38 and 63-110 are canceled. The Examiner has rejected claims 39-62 and 111-158 under 35 U.S.C. § 103(a). The final rejection of claims 39-62 and 111-158 is being appealed and a list of the claims on appeal is found in the attached Claims Appendix. Furthermore, each claim of this patent application is separately patentable, and upon issuance of a patent will be entitled to a separate presumption of validity under 35 U.S.C. § 282.

IV. Status of Amendments

The After Final Amendment filed on November 2, 2006 was not entered. All previous and subsequent claim amendments have been entered.

V. Summary Of Claimed Subject Matter

The claimed invention relates to a high-performance tire for vehicles having a curvature ratio not greater than 0.1, and capable of providing a high torque and reaching high speeds. *See* Specification, pg. 1, lines 5-8. In high performance tires there is a need to ensure an adequate performance of the tire, in spite of the extreme stresses it has to withstand in use. It is difficult to provide a tire having structural and functional features adapted not only to ensure an adequate performance of the tire, but also to maintain substantially constant—independently of the wear conditions of the tread—performances of the tire in general and, in particular, grip on dry and wet ground, tractivity, side stability and noisiness. *See* Specification, pg. 3, lines 25-29.

This problem is solved by the tire of the present invention, which has two shoulder zones (Fig. 2, reference letters F and G) and an equatorial zone (Fig. 2, reference letter E). The tire is further characterized in that there are transversal grooves (Fig. 2, reference numbers 15a-15e) which are circumferentially distributed along the tread in groups alternately extending from shoulder zones of the tread. *See* Specification, pg. 18, lines 5-9. The groups of transversal grooves define a plurality of substantially-continuous tread portions in the equatorial zone. *See* Specification, pg. 3, line 30 - pg. 4, line 3. The substantially-continuous portions are portions of the tread which are not interrupted by grooves. *See* Specification, pg. 4, lines 15-17. The structural stiffness resulting from the mutual fitting of the substantially-continuous axially opposed tread portions, allows these portions to absorb stresses without bending or significant deformation, and all of the thermal-mechanical stresses imparted thereto during the tire rolling. *See* Specification, pg. 4, lines 27-30. Due to the stiffness of the substantially-continuous tread portions, there is drastic reduction in the thermal-mechanical degradation phenomena of the elastomeric matrix of the tread. *See* Specification, pg. 4, line 31 - pg. 5, line 1.

Independent claim 39 is directed at a tire for a vehicle (*See* Specification, pg. 1, line 4; Fig. 1, reference number 1), comprising a carcass structure (*See* Specification, pg. 16, line 21; Fig. 1, reference number 2), a belt structure coaxially associated to the carcass structure (*See* Specification, pg. 17, line 3; Fig. 1, reference number 12), and a tread coaxially extending around the belt structure (*See* Specification, pg. 17, lines 6-7; Fig. 1, reference number 14), wherein the tire comprises a curvature ratio not greater than 0.1 (*See* Specification, pg. 1, line 6), wherein the carcass structure comprises a central crown portion and two sidewalls (*See* Specification, pg. 16, lines 21-22; Fig. 1, reference numbers 3, 4, and 5), wherein each sidewall ends in a bead for anchoring the tire to a rim of a wheel (*See* Specification, pg. 17, lines 1-2; Fig. 1, reference numbers 9, 10, and 11), wherein the tread comprises an equatorial zone (*See* Specification, pg. 17, lines 13-15; Fig. 2, reference letter E) and two shoulder zones (*See* Specification, pg. 17, lines 19-21; Fig. 2, reference letters F and G), wherein the equatorial zone extends on both sides of an equatorial plane of the tire (*See* Specification, pg. 17, lines 13-15; Fig. 2, reference letter E), wherein the two shoulder zones are disposed in axially-opposed positions with respect to the equatorial zone (*See* Specification, pg. 17, lines 19-21; Fig. 2, reference letters F and G), wherein the tread further comprises a plurality of transversal grooves (*See* Specification, pg. 17, lines 19-21; Fig. 2, reference number 15), wherein each transversal groove comprises an equatorial groove portion in the equatorial zone and a shoulder groove portion in one of the shoulder zones, wherein the equatorial groove portion of each transversal groove has a uniform width, wherein the shoulder groove portion of each transversal groove has at least a portion having a width smaller than the width of the equatorial groove portion (*See* Specification, pg. 19, lines 3-7; Fig. 2, reference number 20), wherein the transversal grooves are circumferentially distributed in groups alternately extending from the axially-opposed shoulder

zones (*See* Specification, pg. 17, lines 19-21; Fig. 2), wherein the groups of transversal grooves define a plurality of substantially-continuous tread portions in the equatorial zone (*See* Specification, pg. 18, lines 5-6; Fig. 2, reference number 18), wherein each substantially-continuous tread portion ends at an equatorial groove portion of a same transversal groove of an axially-opposed group of transversal grooves (*See* Specification, pg. 18, lines 6-9; Fig. 2), wherein each of the transversal grooves ends at a predetermined distance from the equatorial groove portion of a longest transversal groove of the axially-opposed group of transversal grooves so that all of the transversal grooves end within the equatorial zone (*See* Specification, pg. 17, lines 26-27; pg. 18, lines 25-28; Fig. 2), wherein the longest transversal groove of the axially opposed group of transversal grooves extends from one of said axially opposed shoulder zones and terminates at a location between the equatorial plane and the sidewall opposite said one of the axially-opposed shoulder zones (*See* Specification, pg. 17, lines 26-27; Fig. 2), and wherein each substantially-continuous tread portion comprises a width wider than an adjacent transversal groove (*See* Specification, pg. 17, lines 14-20; Fig. 2).

Independent claim 58 is similar in scope to claim 39, but is directed to a set of tires comprising two tires for mounting on front wheels of a vehicle (*See* Specification, pg. 13, lines 18-19), two tires for mounting on rear wheels of the vehicle (*See* Specification, pg. 13, lines 19-20), wherein the tires for mounting on the front wheels each comprise a first tread, wherein the tires for mounting on the rear wheels each comprise a second tread (*See* Specification, pg. 13, lines 20-22), wherein each tire comprises a curvature ratio not greater than 0.1 (*See* Specification, pg. 1, line 6), wherein the first and second treads each comprise an equatorial zone (*See* Specification, pg. 17, lines 13-15; Fig. 2, reference letter E) and two shoulder zones (*See* Specification, pg. 17, lines 19-21, Fig. 2, reference letters F and G), wherein, in the first and

second treads, the equatorial zone extends on both sides of an equatorial plane of a respective tire (*See* Specification, pg. 17, lines 13-15; Fig. 2, reference letter E), wherein, in the first and second treads, the two shoulder zones are disposed in axially-opposed positions relative to the equatorial zone of the respective tire (*See* Specification, pg. 17, lines 19-21; Fig. 2, reference letters F and G), wherein the first and second treads each further comprise a plurality of transversal grooves (*See* Specification, pg. 17, lines 19-21; Fig. 2, reference number 15), wherein, in the first and second treads, each transversal groove comprises an equatorial groove portion in an equatorial zone of the respective tire and a shoulder groove portion in one of the shoulder zones of the respective tire, wherein the equatorial groove portion of each transversal groove has a uniform width, wherein the shoulder groove portion of each transversal groove has at least a portion having a width smaller than the width of the equatorial groove portion (*See* Specification, pg. 19, lines 3-7, Fig. 2, reference number 20), wherein, in the first treads, the transversal grooves are circumferentially distributed in groups alternately extending from axially-opposed shoulder zones of the respective front tire, each group comprising three to five transversal grooves (*See* Specification, pg. 14, lines 1-3), wherein, in the second treads, the transversal grooves are circumferentially distributed in groups alternately extending from axially-opposite shoulder zones of the respective rear tire, each group comprising five to seven transversal grooves (*See* Specification, pg. 14, lines 4-6), wherein, in the first and second treads, the groups of transversal grooves define a plurality of substantially-continuous tread portions in the equatorial zone of the respective tire (*See* Specification, pg. 18, lines 5-6; Fig. 2, reference number 18), wherein, in the first and second treads, each substantially-continuous tread portion ends at an equatorial groove portion of a same transversal groove of an axially-opposed group of transversal grooves of the respective tire (*See* Specification, pg. 18, lines 6-9; Fig. 2), wherein, in the first and second

treads, each of the transversal grooves ends at a predetermined distance from the equatorial groove portion of a longest transversal groove of the axially-opposed group of transversal grooves so that all of the transversal grooves end within the equatorial zone of the respective tire (*See* Specification, pg. 17, lines 26-27; pg. 18, lines 25-28; Fig. 2), wherein the longest transversal groove of the axially opposed group of transversal grooves extends from one of said axially opposed shoulder zones and terminates at a location between the equatorial plane and the sidewall opposite said one of the axially-opposed shoulder zones (*See* Specification, pg. 17, lines 26-27, Fig. 2).

Independent claim 111 is directed at a tire for a vehicle (*See* Specification, pg. 1, line 4; Fig. 1, reference number 1), comprising a carcass structure (*See* Specification, pg. 16, line 21; Fig. 1, reference number 2), a belt structure coaxially associated to the carcass structure (*See* Specification, pg. 17, line 3; Fig. 1, reference number 12), and a tread coaxially extending around the belt structure (*See* Specification, pg. 17, lines 6-7; Fig. 1, reference number 14), wherein the tire comprises a curvature ratio not greater than 0.1 (*See* Specification, pg. 1, line 6), wherein the carcass structure comprises a central crown portion and two sidewalls (*See* Specification, pg. 16, lines 21-22; Fig. 1, reference numbers 3, 4, and 5), wherein each sidewall ends in a bead for anchoring the tire to a rim of a wheel (*See* Specification, pg. 17, lines 1-2; Fig. 1, reference numbers 9, 10, and 11), wherein the tread comprises an equatorial zone (*See* Specification, pg. 17, lines 13-15; Fig. 2, reference letter E) and two shoulder zones (*See* Specification, pg. 17, lines 19-21, Fig. 2; reference letters F and G), wherein the equatorial zone extends on both sides of an equatorial plane of the tire (*See* Specification, pg. 17, lines 13-15; Fig. 2, reference letter E), wherein the two shoulder zones are disposed in axially-opposed positions with respect to the equatorial zone (*See* Specification, pg. 17, lines 19-21; Fig. 2,

reference letters F and G), wherein the tread further comprises a plurality of transversal grooves (*See* Specification, pg. 17, lines 19-21; Fig. 2, reference number 15), wherein each transversal groove comprises an equatorial groove portion in the equatorial zone and a shoulder groove portion in one of the shoulder zones, wherein the equatorial groove portion of each transversal groove has a uniform width (*See* Specification, pg. 19, lines 3-4; Fig. 2), wherein the transversal grooves are circumferentially distributed in groups alternately extending from the axially-opposed shoulder zones (*See* Specification, pg. 17, lines 19-21; Fig. 2), wherein the groups of transversal grooves define a plurality of substantially-continuous tread portions in the equatorial zone (*See* Specification, pg. 18, lines 5-6; Fig. 2, reference number 18), wherein each substantially-continuous tread portion ends at an equatorial groove portion of a same transversal groove of an axially-opposed group of transversal grooves (*See* Specification, pg. 18, lines 6-9, Fig. 2), wherein each of the transversal grooves ends at a predetermined distance from the equatorial groove portion of a longest transversal groove of the axially-opposed group of transversal grooves so that all of the transversal grooves end within the equatorial zone (*See* Specification, pg. 17, lines 26-27; pg. 18, lines 25-28; Fig. 2), wherein each substantially-continuous tread portion comprises a width wider than an adjacent transversal groove (*See* Specification, pg. 17, lines 14-20; Fig. 2), and wherein the substantially-continuous tread portions extend from said axially-opposed shoulder zones towards the equatorial plane of the tire to form a structurally stiff grid of elastomeric material portions fitted in with one another (*See* Specification, pg. 4, lines 27-30).

Independent claim 130 is similar in scope to claim 111, but is directed to a set of tires comprising two tires for mounting on front wheels of a vehicle (*See* Specification, pg. 13, lines 18-19), two tires for mounting on rear wheels of the vehicle (*See* Specification, pg. 13, lines 19-

20), wherein the tires for mounting on the front wheels each comprise a first tread, wherein the tires for mounting on the rear wheels each comprise a second tread (*See* Specification, pg. 13, lines 20-22), wherein each tire comprises a curvature ratio not greater than 0.1 (*See* Specification, pg. 1, line 6), wherein the first and second treads each comprise an equatorial zone (*See* Specification, pg. 17, lines 13-15; Fig. 2, reference letter E) and two shoulder zones (*See* Specification, pg. 17, lines 19-21; Fig. 2, reference letters F and G), wherein, in the first and second treads, the equatorial zone extends on both sides of an equatorial plane of a respective tire (*See* Specification, pg. 17, lines 13-15; Fig. 2, reference letter E), wherein, in the first and second treads, the two shoulder zones are disposed in axially-opposed positions relative to the equatorial zone of the respective tire (*See* Specification, pg. 17, lines 19-21; Fig. 2, reference letters F and G), wherein the first and second treads each further comprise a plurality of transversal grooves (*See* Specification, pg. 17, lines 19-21; Fig. 2, reference number 15), wherein, in the first and second treads, each transversal groove comprises an equatorial groove portion in an equatorial zone of the respective tire and a shoulder groove portion in one of the shoulder zones of the respective tire, wherein the equatorial groove portion of each transversal groove has a uniform width (*See* Specification, pg. 19, lines 3-4; Fig. 2), wherein, in the first treads, the transversal grooves are circumferentially distributed in groups alternately extending from axially-opposed shoulder zones of the respective front tire, each group comprising three to five transversal grooves (*See* Specification, pg. 14, lines 1-3), wherein, in the second treads, the transversal grooves are circumferentially distributed in groups alternately extending from axially-opposite shoulder zones of the respective rear tire, each group comprising five to seven transversal grooves (*See* Specification, pg. 14, lines 4-6), wherein, in the first and second treads, the groups of transversal grooves define a plurality of substantially-continuous tread portions in the

equatorial zone of the respective tire (*See* Specification, pg. 18, lines 5-6; Fig. 2, reference number 18), wherein, in the first and second treads, each substantially-continuous tread portion ends at an equatorial groove portion of a same transversal groove of an axially-opposed group of transversal grooves of the respective tire (*See* Specification, pg. 18, lines 6-9; Fig. 2), wherein, in the first and second treads, each of the transversal grooves ends at a predetermined distance from the equatorial groove portion of a longest transversal groove of the axially-opposed group of transversal grooves so that all of the transversal grooves end within the equatorial zone of the respective tire (*See* Specification, pg. 17, lines 26-27; pg. 18, lines 25-28; Fig. 2), wherein the substantially-continuous tread portions extend from said axially-opposed shoulder zones towards the equatorial plane of the tire to form a structurally stiff grid of elastomeric material portions fitted in with one another (*See* Specification, pg. 4, lines 27-30).

Independent claim 135 is directed at a tire for a vehicle (*See* Specification, pg. 1, line 4; Fig. 1, reference number 1), comprising a carcass structure (*See* Specification, pg. 16, line 21; Fig. 1, reference number 2), a belt structure coaxially associated to the carcass structure (*See* Specification, pg. 17, line 3; Fig. 1, reference number 12), and a tread coaxially extending around the belt structure (*See* Specification, pg. 17, lines 6-7; Fig. 1, reference number 14), wherein the tire comprises a curvature ratio not greater than 0.1 (*See* Specification, pg. 1, line 6), wherein the carcass structure comprises a central crown portion and two sidewalls (*See* Specification, pg. 16, lines 21-22; Fig. 1, reference numbers 3, 4, and 5), wherein each sidewall ends in a bead for anchoring the tire to a rim of a wheel (*See* Specification, pg. 17, lines 1-2; Fig. 1, reference numbers 9, 10, and 11), wherein the tread comprises an equatorial zone (*See* Specification, pg. 17, lines 13-15; Fig. 2, reference letter E) and two shoulder zones (*See* Specification, pg. 17, lines 19-21; Fig. 2, reference letters F and G), wherein the equatorial zone

extends on both sides of an equatorial plane of the tire (*See* Specification, pg. 17, lines 13-15; Fig. 2, reference letter E), wherein the two shoulder zones are disposed in axially-opposed positions with respect to the equatorial zone (*See* Specification, pg. 17, lines 19-21; Fig. 2, reference letters F and G), wherein the tread further comprises a plurality of transversal grooves (*See* Specification, pg. 17, lines 19-21; Fig. 2, reference number 15), wherein each transversal groove comprises an equatorial groove portion in the equatorial zone and a shoulder groove portion in one of the shoulder zones, wherein the equatorial groove portion of each transversal groove has a uniform width (*See* Specification, pg. 19, lines 3-4; Fig. 2), wherein the transversal grooves are circumferentially distributed in groups alternately extending from the axially-opposed shoulder zones (*See* Specification, pg. 17, lines 19-21; Fig. 2), wherein the groups of transversal grooves define a plurality of substantially-continuous tread portions in the equatorial zone (*See* Specification, pg. 18, lines 5-6; Fig. 2, reference number 18), wherein each substantially-continuous tread portion ends at an equatorial groove portion of a same transversal groove of an axially-opposed group of transversal grooves (*See* Specification, pg. 18, lines 6-9; Fig. 2), wherein each of the transversal grooves ends at a predetermined distance from the equatorial groove portion of a longest transversal groove of the axially-opposed group of transversal grooves so that all of the transversal grooves end within the equatorial zone (*See* Specification, pg. 17, lines 26-27; pg. 18, lines 25-28; Fig. 2), and wherein the substantially-continuous tread portions are provided about an axis such that during tire rolling, stresses imparted to the substantially-continuous tread portions are discharged along the axis (*See* Specification, pg. 11, lines 19-22).

Independent claim 154 is similar in scope to claim 135, but is directed to a set of tires comprising two tires for mounting on front wheels of a vehicle (*See* Specification, pg. 13, lines

18-19), two tires for mounting on rear wheels of the vehicle (*See* Specification, pg. 13, lines 19-20), wherein the tires for mounting on the front wheels each comprise a first tread, wherein the tires for mounting on the rear wheels each comprise a second tread (*See* Specification, pg. 13, lines 20-22), wherein each tire comprises a curvature ratio not greater than 0.1 (*See* Specification, pg. 1, line 6), wherein the first and second treads each comprise an equatorial zone (*See* Specification, pg. 17, lines 13-15; Fig. 2, reference letter E) and two shoulder zones (*See* Specification, pg. 17, lines 19-21, Fig. 2; reference letters F and G), wherein, in the first and second treads, the equatorial zone extends on both sides of an equatorial plane of a respective tire (*See* Specification, pg. 17, lines 13-15; Fig. 2, reference letter E), wherein, in the first and second treads, the two shoulder zones are disposed in axially-opposed positions relative to the equatorial zone of the respective tire (*See* Specification, pg. 17, lines 19-21; Fig. 2, reference letters F and G), wherein the first and second treads each further comprise a plurality of transversal grooves (*See* Specification, pg. 17, lines 19-21; Fig. 2, reference number 15), wherein, in the first and second treads, each transversal groove comprises an equatorial groove portion in an equatorial zone of the respective tire and a shoulder groove portion in one of the shoulder zones of the respective tire, wherein the equatorial groove portion of each transversal groove has a uniform width (*See* Specification, pg. 19, lines 3-4; Fig. 2), wherein, in the first treads, the transversal grooves are circumferentially distributed in groups alternately extending from axially-opposed shoulder zones of the respective front tire, each group comprising three to five transversal grooves (*See* Specification, pg. 14, lines 1-3), wherein, in the second treads, the transversal grooves are circumferentially distributed in groups alternately extending from axially-opposite shoulder zones of the respective rear tire, each group comprising five to seven transversal grooves (*See* Specification, pg. 14, lines 4-6), wherein, in the first and second treads, the groups

of transversal grooves define a plurality of substantially-continuous tread portions in the equatorial zone of the respective tire (*See* Specification, pg. 18, lines 5-6; Fig. 2, reference number 18), wherein, in the first and second treads, each substantially-continuous tread portion ends at an equatorial groove portion of a same transversal groove of an axially-opposed group of transversal grooves of the respective tire (*See* Specification, pg. 18, lines 6-9; Fig. 2), wherein, in the first and second treads, each of the transversal grooves ends at a predetermined distance from the equatorial groove portion of a longest transversal groove of the axially-opposed group of transversal grooves so that all of the transversal grooves end within the equatorial zone of the respective tire (*See* Specification, pg. 17, lines 26-27, pg. 18, lines 25-28; Fig. 2), and wherein the substantially-continuous tread portions are provided about an axis such that during tire rolling, stresses imparted to the substantially-continuous tread portions are discharged along the axis (*See* Specification, pg. 11, lines 19-22).

VI. Grounds of Rejection to be Reviewed

A. Claims 39-53, 55-58, 61-62, 111-125, 127-130, 133-149, 151-154, and 157-158 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over Japanese Patent Publication No. 4-1544408 (Japan '408), in view of Great Britain Patent No. 2,224,472 ("Great Britain '472"), Japanese Patent Publication No. 6-247,109 ("Japan '109"), alleged admitted prior art (specification page 3, lines 1-5)("AAPA"), and optionally U.S. Patent No. 2,104,532 to Sommer ("Sommer").

B. Claims 60, 132, and 156 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over Japan '408 in view of Great Britain '472, Japan '109, AAPA and optionally Sommer, and further in view of European Patent Application No. 722,851 to Guspodin et al. ("Guspodin").

C. Claims 39-53, 55-58, 111-125, 127-130, 135-149, and 151-154 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over Sommer in view of Great Britain '472, AAPA, and optionally at least one of U.S. Patent No. 1,996,418 to Hargraves ("Hargraves") and Japan '109.

D. Claims 54, 126, and 150 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over Sommer in view of Great Britain '472, AAPA, and optionally at least one of U.S. Patent No. 1,996,418 to Hargraves and Japan '109, and further in view of European Patent Application No. 565,270 to Himuro ("Himuro").

E. Claims 59-62, 131-134 and 155-158 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over Sommer in view of Great Britian '472, AAPA, and optionally at least one of Hargraves and Japan '109, and further in view of Guspodin.

F. Claims 135-141, 146, 149, 152, and 153 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over U.S. Patent No. 2,011,552 to Hoover ("Hoover") in view of U.S. Patent No. 4,446,902 to Madec et al ("Madec").

VII. Argument

A. CLAIMS 39-53, 55-58, 61-62, 111-125, 127-130, 133-149, 151-154, AND 157-158 ARE PATENTABLE UNDER 35 U.S.C. § 103(A) OVER JAPAN '408 IN VIEW OF GREAT BRITIAN '472, JAPAN '109, AAPA, AND SOMMER

Claims 39-53, 55-58, 61-62, 111-125, 127-130, 133-149, 151-154, and 157-158 were rejected under 35 U.S.C. § 103(a) over Japan '408, in view of Great Britain '472, Japan '109, AAPA, and Sommer. Appellants respectfully submit that the Examiner has not established a *prima facie* case of obviousness; therefore, this rejection is legally improper and should be reversed.

1. Legal Standard

In making a rejection under 35 U.S.C. § 103, the Examiner has the initial burden to establish a *prima facie* case of obviousness. M.P.E.P. § 2143. To meet this burden, the Examiner must point to some objective teaching in the prior art, coupled with the knowledge generally available to one of ordinary skill in the art at the time of the invention, that would have motivated one of ordinary skill to modify the reference or to combine references teachings with a reasonable expectation of success in obtaining the presently claimed invention. *See* M.P.E.P. §§ 2143.01 and 2143.02; *In re Fine,* 5 U.S.P.Q.2d 1596, 1598, 837 F.2d 1071, 1074 (Fed. Cir. 1988). The Federal Circuit has on numerous occasions stated that to establish a prima facie case of obviousness an Examiner must show that the references, taken alone or in combination, (1) teach all the present claim limitations; (2) would have suggested to or provided motivation for one of ordinary skill in the art to make the claimed invention; and (3) would have provided one of ordinary skill with a reasonable expectation of success in so making. *See In re Vaeck*, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991) (*citing In re Dow Chemical Co.*, 837 F.2d 469, 473, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988)). "Both the suggestion and the reasonable expectation

of success must be found in the prior art reference, not in the applicant's disclosure." *In re Vaeck* at 1442 (emphasis added). The Federal Circuit has gone on to state that:

> [t]he factual inquiry whether to combine references must be thorough and searching. It must be based on objective evidence of record . . . Thus the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion.

See In re Lee, 61 U.S.P.Q.2d 1430, 1434, 277 F.3d 1338, 1344 (Fed. Cir. 2002) (emphasis added).

As explained by the Federal Circuit, "[o]ur case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references." *Id.*, at 1617, 175 F.3d at 999. Therefore, this evidence must be explicitly set forth by the Examiner. *See In re Lee*, 61 U.S.P.Q.2d at 1433, 277 F.3d at 1343.

2. The Examiner Has Not Met His Burden In Establishing That The Combination of Japan '408, Great Britain '472, Japan '109, AAPA and Optionally Sommer Teaches All Of The Claim Limitations

a) Independent Claims 111 and 130

Claim 111 contains the following limitations: "that each substantially-continuous tread portion ends at an equatorial groove portion of a same transversal groove of an axially-opposed group of transversal grooves;" "that each of the transversal grooves ends at a predetermined distance from the equatorial groove portion of a longest transversal groove of the axially-opposed group of transversal grooves so that all of the transversal grooves end within the equatorial zone" so that "the substantially-continuous tread portions extend from said axially-

opposed shoulder zones towards the equatorial plane of the tire to form a structurally stiff grid of elastomeric material portions fitted in with one another" (emphasis added).

With regard to claim 111 and claim 130 (which contains similar language to claim 111), the Examiner argues that while Japan '408 shows tread portions that are not continuous, as claimed, it would have been "obvious of one of ordinary skill in the art to connect the tread portion … so as to form a structurally stiff grid having slant grooves but no circumferential grooves" in light of the teachings of Japan '109, or Great Britain '472 or Sommer (emphasis in original). See October 4, 2005 Office Action, page 3. However, as discussed below, simply "connecting" the tread portions on one side of the directional tread of Japan '408's to the tread portions on the other side of the tire is insufficient to form the claimed structurally stiff grid material portions fitted in with one another.

(1) Japan '408

Japan '408 relates to a pneumatic vehicle tire which aims to improve uniformity and prevent "a rain grooves wandering phenomenon" while reducing noise. See Abstract of Japan '408, lines 1-3. According to Japan '408, this is purportedly achieved by providing a tire having a directional pattern with multiple parallel continuous grooves (4) running from the central portion to both shoulder portions on the tread, to form rows or groups of parallel blocks (5) enclosed by the continuous grooves (4). See Abstract of Japan '408, lines 1-3. In contrast, the claimed invention is designed to withstand the presence of extreme stresses (Specification, page 2, lines 6-10), which, as is well known, take place only on dry ground.

As discussed in the Specification, in order to achieve the claimed structurally stiff grid and the related technical effects, the key issue is not whether the tread portions on one side of the tread are "connected" to the tread portions on the other side of the tread but, rather, whether or not the substantially-continuous tread portions are mutually "fitted in with one another" as

claimed in claims 111 and 130. See Specification, page 4, line 21 (disclosing that the portions are "fitted in with one another"). The required mutual fitting of the substantially-continuous, axially-opposed tread portions is achieved due to the specific arrangement of the transversal grooves and of the substantially-continuous tread portions defined by the claimed limitations that "each substantially-continuous tread portion ends at an equatorial groove portion of a same transversal groove of an axially-opposed group of transversal grooves" and that "each of the transversal grooves ends at a predetermined distance from the equatorial groove portion of a longest transversal groove of the axially-opposed group of transversal grooves so that all of the transversal grooves end within the equatorial zone."

A result of this specific arrangement is an enhanced structural stiffness of the tread, allowing the substantially-continuous tread portions to absorb all the thermal-mechanical stresses imparted to the tread during tire rolling without bending or too much deformation. The ensuing mobility reduction of the various tread portions, brings about a drastic reduction of the thermal-mechanical degradation phenomena of the elastomeric matrix of the tread also in the presence of extreme stresses. See Specification, page 4, lines 31-32. By drastically reducing the thermal-mechanical degradation phenomena of the elastomeric tread portions, in the presence of extreme stresses, which the claimed tire is subjected to, the tire is allowed to maintain substantially constant performance, independent of the wear conditions of the tread.

Additionally, as discussed below, neither Great Britain '472 , Japan '109, nor Sommer teach "a structurally stiff grid of elastomeric material portions fitted in with one another" as claimed in claims 111 and 130.

(2) Great Britain '472

Great Britain '472 discloses a tread pattern for further improving the tire performance with respect to drainage and noise development, non-skid facility, absorption of lateral forces,

insensitivity when traveling over rails and rolling resistance. See Great Britain '472, page 2, lines 6-12. According to Great Britain '472, the aforementioned object is achieved by providing a tread pattern in which the essential factor is an arrangement of herringbone-oriented transversal grooves (14, 15) ending at the equatorial plane (x-x) of the tire, so as to form rib profile elements (12, 13) continuously interconnected by means of profile element bridging members or webs (18, 19). See Great Britain '472, page 6, lines 20-27. Great Britain '472 fails to suggest that a different arrangement and orientation of the transversal grooves may achieve a blockless structurally stiff grid of elastomeric material portions fitted in with one another and substantially devoid of mobile portions, such as the bridging members or webs (18, 19), to achieve the different objective of maintaining substantially constant, independent of the wear conditions of the tread, performances in general of a high performance tire and, in particular, its grip on dry ground.

The Examiner alleged that "with respect to the claim limitation 'fitted in with one another', the original specification would disclose obtaining this construction by omitting circumferential grooves and Great Britain '472 and Japan '109 would provide ample motivation to omit all circumferential grooves." See May 2, 2006 Office Action, page 19.

However, the Appellants' specification does not offer such a teaching but, to the contrary, teaches that in preferred embodiments of the claimed tire the latter may further comprise: a couple of longitudinal slots or "disconnection grooves," preferably extending from opposite parts of the equatorial plane of the tire on said shoulder zones throughout the whole circumferential development of the tread, and a couple of longitudinal continuous slits circumferentially extending in the shoulder zone and on either side of the equatorial plane of the tire. See Specification, page 12, lines 3-24; page 19, lines 12-24 and figures 1-3.

Thus, contrary to what the Examiner alleges, the formation of a structurally stiff grid of elastomeric material portions fitted in with one another is unrelated to the omission of circumferential grooves. This assertion is not contrary to the specification, as alleged by the Examiner. See January 22, 2007 Advisory Action. While the specification discusses the realization that a tread with no circumferential grooves might be advantageous, the formation of the structurally stiff grid is not realized solely by "omitting longitudinal grooves." Instead, the formation of structurally stiff grid, as disclosed in the specification, is related to a specific arrangement and orientation of the transversal grooves and of the tread portions defined therebetween.

The Examiner further alleges, with respect to Great Britain '472, that no unexpected results over the applied prior art commensurate in scope with the claims have been shown. See May 2, 2006 Office Action, page 20. However, Appellants have shown an unexpected increase in performance of the claimed tire as compared to conventional tires. See Specification, Tables II, IV, and VI. The tires within the scope of Appellants claims had improved performance on wet ground, an increase in the ground-contacting area, and a reduction in noise. There is no requirement to show unexpected results over the specific art cited by the Examiner, as intimated by the December 5, 2006 Advisory Action. See December 5, 2006 Advisory Action, page 2.

The Examiner also contends that "claims 135 and 154 fail to distinguish over Great Britain '472 by reciting substantially-continuous tread portions which are provided about an axis and stresses being discharged along the axis." See May 2, 2006 Office Action, page 20. Nothing in Great Britain '472, however teaches or suggests that stresses are discharged along the

axis of the substantially-continuous tread portions, and the Examiner has not provided a cite to any portion of Great Britain '472 to support his assertion.

The Examiner further asserts that Appellants' arguments concerning the mobility of bridging members 18, 19 of Great Britain '472 are a simple attorney argument which cannot take the place of evidence in the record as indicated in MPEP 716.01(c). However, Great Britain '472 discloses that the tread surface profile, which comprises a "central web" adapts "to the direction of rotation" (page 3, lines 17-20). In order for such adaptation to take place, the tread surface profile must have some degree of mobility. Thus Appellants' discussion of Great Britian '472 is not mere attorney argument, but is substantiated by the reference itself.

Therefore, Great Britain '472 also fails to disclose at least "that each substantially-continuous tread portion ends at an equatorial groove portion of a same transversal groove of an axially-opposed group of transversal grooves;" (claims 39, 58, 111, 130, 135, and 154) "that each of the transversal grooves ends at a predetermined distance from the equatorial groove portion of a longest transversal groove of the axially-opposed group of transversal grooves so that all of the transversal grooves end within the equatorial zone" (claims 39, 58, 111, 130, 135, and 154) so that "the substantially-continuous tread portions extend from said axially-opposed shoulder zones towards the equatorial plane of the tire to form a structurally stiff grid of elastomeric material portions fitted in with one another"(claim 111 and 130) (emphasis added).

(3) Japan '109

Japan '109 also fails to teach or suggest the claimed invention. Japan '109 relates to a pneumatic tire which aims at achieving high wet characteristics and a low noise without reducing other important functions. See Abstract of Japan '109, last two lines. In order to achieve this result, Japan '109 teaches to provide the tread with inclined main grooves (2) having a specific length and inclination and having dead-end terminals near the tread center (2a) and the width

ends (2b) which partition the grounding land together with the width ends of the treads and which extend staggering in a slight inclination to a tire equatorial surface, and narrow branch auxiliary grooves (3) extending to the side wall side to the dead-end terminals (2b).

Japan '109, however, fails to teach the following key features necessary to accomplish the claimed stiff grid of elastomeric material portions fitted in with one another: that "each substantially-continuous tread portion defined between the transversal grooves ends at an equatorial groove portion of a same transversal groove" of an axially-opposed group of transversal grooves and that "each of the transversal grooves ends at a predetermined distance from the equatorial groove portion of a longest transversal groove of the axially-opposed group of transversal groove." Therefore, Japan '109 does not teach all the limitations of claim 111 or 130.

(4) <u>Sommer</u>

Sommer also teaches away from the claimed arrangement. Sommer relates to an improved tire tread for vehicles of all kind such as bicycles, motor bicycles, automobiles and the like. Sommer is concerned with the object of avoiding the danger of skidding and sliding on wet roads and teaches to achieve this object by providing a tread equipped with alternating grooves and ribs or projections of relatively small width which run across the wheel plane and are substantially radial thereto. <u>See Sommer</u>, page 1, left col., lines 1-5 and right col. lines 6-10. In particular, Sommer suggests the critical importance to the width of the alternating grooves and ribs or projections radially running across the wheel plane which should be sufficiently small so as to trigger the technical effect of allowing deformation of each rubber rib or projection towards the next rib under the load in such a manner that a sharp projecting edge will always cut into the mud layer formed on the wet ground. <u>See Sommer,</u> page 1, right col., lines 8-17.

Sommer, by the very nature of the features it considers to be essential, fails to disclose a tire for four-wheeled vehicles wherein "each substantially-continuous tread portion should end at an equatorial groove portion of a same transversal groove of an axially-opposed group of transversal grooves" (emphasis added). Sommer, in fact, discloses that some of the substantially-continuous tread portions defined between the transversal grooves do not end at an equatorial groove portion of a same transversal groove of an axially-opposed group of transversal grooves. See Sommer, Figures 8 and 8a which clearly show tread portions 53 ending at a zone beyond the end of some axially-opposed transversal grooves 51.

Sommer also fails to disclose that "each of the transversal grooves ends at a predetermined distance from the equatorial groove portion of a longest transversal groove of the axially-opposed group of transversal grooves so that all of the transversal grooves end within the equatorial zone" (emphasis added). Sommer, in fact, discloses that some of the transversal grooves do not end at a predetermined distance from the equatorial groove portion of a longest transversal groove of the axially-opposed group of transversal grooves. See Sommer, Figures 8 and 8a which clearly show transversal grooves 51 ending at a zone beyond the end of the longest transversal groove 51 of the axially-opposed group of transversal grooves 51.

Sommer also fails to disclose that "the substantially-continuous tread portions extend from said axially-opposed shoulder zones towards the equatorial plane of the tire to form a structurally stiff grid of elastomeric material portions fitted in with one another" (emphasis added). In regard to claims 111 and 130, the Examiner argues that Sommer teaches the claimed "structurally stiff grid" since "structurally stiff" is a relative term. See October 4, 2005 Office Action, page 10. Appellants note that the feature "structurally stiff" is related to a combination of structural features, namely that "each substantially-continuous tread portion ends at an equatorial groove

portion of a same transversal groove of an axially-opposed group of transversal grooves;" that "each of the transversal grooves ends at a predetermined distance from the equatorial groove portion of a longest transversal groove of the axially-opposed group of transversal grooves so that all of the transversal grooves end within the equatorial zone;" so that "the substantially-continuous tread portions extend from said axially-opposed shoulder zones towards the equatorial plane of the tire to form a structurally stiff grid of elastomeric material portions fitted in with one another."

Second, and as already noted above, the structurally stiff grid resulting from the aforementioned mutual fitting of the substantially-continuous, axially-opposed tread portions, allows these portions to absorb all the thermal-mechanical stresses imparted thereto during the tire rolling without bending or too much deformation. See Specification, page 4, line 18 - page 5, line 1. In sharp contrast, Sommer specifically teaches using a tread that "may be sufficiently deformed" and therefore teaches away from using a "structurally stiff grid." See Sommer, page 2, column 1, lines 40-111.

Thus, even by combining Japan '408 with Great Britain '472, Japan '109, or Sommer, contrary to any motivation to do so, one skilled in the art would not have arrived at the claimed "substantially-continuous tread portions extend from said axially-opposed shoulder zones towards the equatorial plane of the tire to form a structurally stiff grid of elastomeric material portions fitted in with one another."

b) Independent Claims 39 and 58

In the Office Action, the Examiner contends that Figure 2 of Japan '408 discloses that "the longest transverse groove extends across the equatorial plane." See October 4, 2005 Office Action, page 3. Claims 39 and 58, however, require that not only that the longest groove cross the equatorial plane but also that the groove terminates at "a location between the equatorial

plane and the sidewall opposite said one of the shoulder zone." The grooves of Japan '408 (shown in Figures 1-4) are "continuous grooves running from the central portion to both shoulder portions" and therefore terminate in the shoulder portion and not at a location prior to the shoulder zone. See Abstract for Japan '408, page 1.

Additionally claims 39 and 58 require that "each of the transversal grooves ends at a predetermined distance from the equatorial groove portion of a longest transversal groove of the axially-opposed group of transversal grooves so that all of the transversal grooves end within the equatorial zone." As stated above, the grooves of Japan '408 are "continuous grooves running from the central portion to both shoulder portions" and therefore do not terminate at a predetermined distance from the equatorial groove portion of any axially-opposed transversal groove.

The Examiner contends that Japan '109 shows "some slant grooves crossing the EP in figure 1." See October 4, 2005 Office Action, page 15. However, independent claims 39 and 58 require not only that some grooves cross the equatorial plane but also that the longest groove extends from the shoulder zone and terminates at a location between the equatorial plane and the sidewall opposite said one of the shoulder zone. In Figure 1 of Japan '109 only the third and the fourth grooves from the left appear to cross the equatorial plane. Significantly, however, Figure 1 of Japan '109 does not show where these grooves originate from or that any of these grooves represent the longest transversal groove. Japan '109 fails to show that each group of the axially opposed groups of transversal grooves has its own longest transversal groove and that this longest transversal groove extends from said one of the axially opposed shoulder zones and terminates at a location between the equatorial plane and the sidewall opposite said one of the

axially-opposed shoulder zones. See Japan '109, Figures 1 and 3. Therefore, Japan '109 also does not teach all the limitations of claims 39 and 58.

The Examiner further contends that each groove 4 "fails to continue so as to intersect the tread edge defined by width W on the other side of the tread at the same angle theta of 10-20 degrees." See May 2, 2006 Office Action, page 21. Japan '408, however, clearly shows multiple parallel continuous grooves 4 running from the central portion to both shoulder portions on the tread, to form rows or groups of parallel blocks 5 enclosed by the continuous grooves 4. Additionally the continuous grooves 4 of Japan '408 shown in the figures terminate in the shoulder portion and not at a location prior to the shoulder zone, and the continuous grooves 4 of Japan '408 shown in Figures 1-4 do not terminate at a predetermined distance from the equatorial groove portion of any axially-opposed transversal groove.

c) Independent Claims 135 and 154

Claims 135 and 154 require that "stresses imparted to the substantially-continuous tread portions are discharged along the axis" to further emphasize the technical consequences of the claimed tread arrangement. With regards to claims 135 and 154, the Examiner argues that this limitation is met by "Great Britain '472's teaching to connect so that the resulting profile has relatively high absorption of lateral forces and nondeformability of shape." See October 4, 2005 Office Action, page 7. However, as discussed above in regard to claim 111, modifying Japan '408 in combination with Great Britain '472 to "connect" the tread portions is improper. Further Great Britain '472 fails to teach substantially-continuous tread portions which are "provided about an axis" and that stresses are "discharged along the axis." Accordingly, for similar reasons Japan '408 and Great Britain '472 also fail to teach the claimed limitation "wherein the substantially-continuous tread portions are provided about an axis such that during tire rolling,

stresses imparted to the substantially-continuous tread portions are discharged along the axis" as recited in claims 135 and 154.

d) Dependent Claims 40-53, 55-57, 61-62, 112-129, 131-134, 136-149, 151-153, 157-158

Appellants submit that dependent claims 40-53, 55-57, 61-62, 112-129, 131-134, 136-149, 151-153, 157-158 also are patentable under 35 U.S.C. § 103(a) over Japan '408 in view of Great Britain '472, Japan '109, AAPA and Sommer at least due to the direct or indirect dependency of claims 40-53, 55-57, 61-62, 112-129, 131-134, 136-149, 151-153, 157-158 from one of independent claims 39, 58, 111, 130, 135 and 154.

Thus, for at least the foregoing reasons, the 35 U.S.C. § 103(a) rejection of the dependent claims over Japan '408 in view of Great Britain '472, Japan '109, AAPA and Sommer is improper and Appellants request its reversal.

3. <u>The Examiner Has Not Met His Burden In Establishing A Motivation To Combine The Teachings Of Japan '408, Great Britain '472, Japan '109, AAPA And Sommer</u>

In the present case, the Examiner has failed to set forth sufficient evidence of a motivation to combine the teachings of Japan '408 with the teaching of Great Britain '472, Japan '109, AAPA or Sommers. One of ordinary skill in the art would have had no motivation to modify the tread pattern of Japan '408 as indicated by the Examiner since the proposed modifications are of features considered to be essential, such as the multiple parallel continuous grooves (4) running from the central portion to both shoulder portions on the tread and enclosing the rows of parallel blocks (5). Moreover, the Examiner's modification of Japan '408 is improper because it would change the principle of operation of a reference. The tire of Japan '408 is specifically designed to have parallel continuous grooves which form block rows. <u>See Abstract of Japan '408</u>, page 1. However, removing the circumferential groove in the center of

the tire would interfere with the functioning of the tire by altering the directional pattern, and thus one of ordinary skill would not modify Japan '408 in the manner proposed by the Examiner. The Examiner asserts that it would be obvious to modify Japan '408 with Great Britain '172 and Japan '109 to create a resulting tread which has "low noise and relatively high absorption of lateral forces and non-deformability of shape." See May 2, 2006 Office Action, page 7. However as the Examiner admits Japan '408 already has "good water drainage and reduced noise. The tire also prevents wandering phenomenon" Id., page 5. Japan '408 nowhere indicates or suggests that the properties disclosed therein are in any way unsatisfactory, or in need of improvement, with respect to noise or absorption of forces. To the contrary, Japan '408 indicates a tire with favorable properties, as acknowledged by the Examiner.

Furthermore, such a motivation to combine cannot be found in Great Britain '472, Japan '109, AAPA or Sommer either. Nowhere in Great Britain '472, Japan '109, AAPA or Sommer is the desirability of modifying the tread pattern suggested.

The Examiner has failed to point to sufficient motivation in Japan '408, Great Britian '472, Japan '109, AAPA or Sommer to make the numerous modifications to the references to arrive at the claimed invention. There is simply no teaching in the cited references that suggests the desirability of making the exact combination or modification proposed by the Examiner. The mere fact that the references can be modified is not sufficient to support a *prima facie* case of obviousness. *See* M.P.E.P. § 2143.01(III). The only motivation to combine the references appears to originate from the Appellants' specification. Thus, the Examiner's prima facie case of obviousness is based on an impermissible hindsight analysis and the rejection is improper and should be withdrawn for at least this reason.

4. The Examiner Has Not Met His Burden Of Establishing A Reasonable Expectation of Success

The Examiner alleges that Japan '408 teaches diagonally extending continuous parallel grooves 4 from the center region to shoulder regions instead of using straight circumferential grooves, and this invention of Japan '408 is not being modified. See May 2, 2006 Office Action at 19. The Examiner also alleges that Japan '408 attaches no importance and criticality to making the grooves 4 form wave shaped grooves 7 that cross the centerline in a zigzag manner. Id.

Appellants respectfully disagree since, as explained in the specification of Japan 408, the key features of the invention disclosed in this reference are that a plurality of parallel continuous grooves 4 are diagonally extended from the center region 2 to shoulder regions 3 in a manner such that the inner-end sides of the block 5 rows surrounded by the grooves 4 cross one another at the center region 2 in unit of one or multiple blocks in the shapes of "∧" in the tire's rotating direction, which arrangement necessarily implies that a plurality of the continuous grooves 4 are made to form wave-shaped grooves 7 that cross the center line in zigzag manner (see claim 1 and description at page 6, last paragraph of the English translation of Japan '408). Contrary to what the Examiner alleges, therefore, the proposed modification to Japan '408 would critically alter the key features of the tire of Japan '408 rendering the same inoperable for its intended purpose. Thus, the Examiner has not made a prima facie case of obviousness, and the rejection is improper and should be withdrawn for at least this reason.

B. CLAIMS 60, 132 AND 156 ARE PATENTABLE UNDER 35 U.S.C. § 103(A) OVER JAPAN '408 IN VIEW OF GREAT BRITAIN '472, JAPAN '109, AAPA, SOMMER, AND GUSPODIN

Appellants submit that dependent claims 60, 132, and 156 are patentable under 35 U.S.C. § 103(a) over Japan '408 in view of Great Britain '472, Japan '109, AAPA, Sommer and

Guspodin at least due to the direct or indirect dependency of claims 60, 132 and 156 from one of independent claims 58, 130, and 154. Guspodin does not teach or suggest all the subject matter of independent claims 58, 130, and 154, and the Examiner does not rely on these references for such teachings. Guspodin is relied on to teach the use of different front and rear tires as claimed in dependent claims 60, 132 and 156. See October 4, 2005 Office Action, page 8.

Thus, for at least the foregoing reasons, the 35 U.S.C. § 103(a) rejection of the dependent claims over Japan '408 in view of Great Britain '472, Japan '109, AAPA, Sommer and Guspodin is improper and Appellants request its reversal.

C. CLAIMS 39-53, 55-58, 111-125, 127-130, 135-149 AND 151-154 ARE PATENTABLE UNDER 35 U.S.C. § 103(A) OVER SOMMER IN VIEW OF GREAT BRITAIN '472, AAPA, HARGARVES AND JAPAN '109

Claims 39-53, 55-58, 111-125, 127-130, 133-149, and 151-154 were rejected under 35 U.S.C. § 103(a) over Sommer in view of Great Britain '472, AAPA, Hargraves and Japan '109. Appellants respectfully submit that the Examiner has not established a *prima facie* case of obviousness; therefore, this rejection is legally improper and should be reversed.

1. The Examiner Has Not Met His Burden In Establishing That The Combination Of Sommer, Great Britain '472, APPA, Hargraves and Japan '109 Teaches All Of The Claim Limitations

a) Independent Claims 39 and 58

(1) Sommer

In the October 4, 2005 Office Action, the Examiner states that Figure 8 and 8a of Sommer discloses the claimed limitation "the longest transversal groove of the axially opposed group of traversal grooves extend from said one of the axially opposed shoulder zones and terminates at a location between the equatorial plane and the sidewall opposite said one of the shoulder zones." See October 4, 2005 Office Action, page 10. However, as shown in Figure 8 of Sommer, grooves (51) of Sommer do not cross the equatorial plane. Instead they terminate at

the center plane. See Sommer, page 3, column 1, lines 2-3 which describes that the grooves run "from the side of the tire to the center plane" and lines 12-17 which describe that the tread arrangement has "what may be described as a rib of small width substantially running parallel with the center plane of the tire." Although the Examiner argues that "it would be impossible to form a zig zag stripe if none of the grooves cross the equatorial plane" (See January 22, 2007 Advisory Action, page 3), this statement is not logical. The term "zig zag" requires only a certain shape (i.e., a line having sharp bends or angles from side to side) and does not inherently require that the grooves cross the equatorial plane.

The Examiner further alleges that Sommer shows in figures 8 and 8a that each of the ribs 53 between the grooves 51 would end at the same transversal groove (the longest transversal groove) of the axially-opposed group of transversal grooves since there is no groove between the ribs 53 of one group and the longest groove 51 of the axially-opposed group. May 2, 2006 Office Action, page 21-22. Figures 8 and 8a of Sommer clearly show that some of the substantially-continuous tread portions or ribs 53 defined between the transversal grooves 51 do not end at an equatorial groove portion of a same transversal groove 51 of an axially-opposed group of transversal grooves. Rather, some of the tread portions 53 end at a zone beyond the end of some axially-opposed transversal grooves 51 and particularly beyond the longest transversal groove of the axially-opposed transversal grooves 51.

The Examiner further asserts that Applicant's argument that Sommer's grooves "terminate at the center plane" is incorrect and that figures 8 and 8a of Sommer illustrate the longest groove crossing the center plane. See May 2, 2006 Office Action at 22-23. Sommer does not meet the claim limitation that the longest transversal groove of the axially opposed group of transversal grooves terminates at a location between the equatorial plane and the

sidewall opposite said one of the axially-opposed shoulder zones. Such a feature cannot be extrapolated from the drawings (which are not to scale). In this regard, however, Sommer is clear: the longest transversal groove of each axially opposed group of transversal grooves terminates at the equatorial plane and does not go beyond the same. See Fig. 8a in combination with the specification at page 3, col. 1, lines 2-3, which describes that the slanting grooves 51 run "from the sides of the tire to its center plane" and lines 12-17 which describe that "[t]he grooves are of different length in such a manner that in the center plane of the tire a zigzag stripe exists which may be defined as a rib of small width substantially running parallel with the center plane of the tire."

(2) Hargraves

In rejecting claims 39 and 58, the Examiner asserts, as an alternative to Sommer, that it would have been obvious to rearrange Sommer's inclined transversal grooves in view of Hargraves. See October 4, 2005 Office Action, page 10. Hargraves relates to a pneumatic vehicle tire which aims at achieving a compromise between a number of different desirable characteristics devising, more specifically, a tire tread which will avoid the tendency towards circumferential flex cracking, and at the same time have ample non-skid, traction and noiseless characteristics. See Hargraves, page 1, left hand col., lines 5-44.

According to Hargraves, the aforementioned objective is achieved by providing a tread pattern in which an arrangement of groups of inclined transversal grooves (17, 22) forms triangular shaped groups of parallel diagonal ribs (16, 21) arranged in two circumferential series with their apexes in one lateral margin of the tread as best shown in figures 1, 2 and 5. Most importantly, the triangular shaped groups of parallel diagonal ribs (16, 21), which constitute one of the essential features of the invention disclosed by Hargraves, are delimited either by a V-shaped transversal groove (17a) or by a continuous zigzag shaped transversal groove (22) which

axially crosses the entire tread band and forms near or at the edges of the tread (see figure 2) sharp-edged material portions (at the lower end of groove 17a or at the apexes of the triangular shaped groups of parallel diagonal ribs). Hargraves shows a longest groove which extends from one sidewall to the other (see 17 in Fig. 1 and also see Fig. 5). The longest groove necessarily terminates in the shoulder portion. Hargraves teaches quite a different structure and arrangement of the transversal grooves and of the elastomeric material portions defined between the same, and is unable to achieve the technical effects of the claimed tire. Any modification of the structure taught by Hargraves so as to modify, for example, the arrangement of the transversal grooves by eliminating the V-shaped transversal groove (17a) or the continuous zigzag shaped transversal groove (22) would render the tire inoperable for its intended purpose.

Accordingly, Hargraves also fails to teach the claimed groove that terminates at "a location between the equatorial plane and the sidewall opposite said one of the shoulder zone." Therefore, Hargraves does not teach all the limitations of claim 39. While the Examiner only specifically discussed claim 39, claim 58 contains the same limitation and is thus distinguishable for similar reasons as those discussed above in regards to claim 39.

Moreover, Hargraves does not teach that <u>each</u> of the transversal grooves ends at a predetermined distance from the equatorial groove portion of a longest transversal groove of the axially-opposed group of transversal grooves so that <u>all</u> of the transversal grooves end within the equatorial zone. Rather, in Hargraves, the V-shaped transversal groove (17a) or the continuous zigzag shaped transversal groove (22) <u>axially crosses the entire tread band</u> and <u>does not end</u> either at a predetermined distance from the equatorial groove portion of a longest transversal groove of the axially-opposed group of transversal grooves, or within the equatorial zone.

Accordingly, Hargraves also fails to teach at least the claimed groove that terminates at "a location between the equatorial plane and the sidewall opposite said one of the shoulder zone" (claims 39 and 58). Additionally, Hargraves does not each or suggest the subject matter of independent claims 111, 130, 135 and 154, and the Examiner does not rely on Hargraves for such teachings.

b) Independent Claims 111 and 130

The Examiner is of the opinion that the "structurally stiff grid" would read on the profiling shown by Sommer in Fig. 8, 8a, "structurally stiff" being a relative expression failing to define a stiffness different from that disclosed by Sommer. See May 2, 2005 Office Action, page 10. As already noted above, the Examiner's reading of Sommer is untenable. The feature "structurally stiff" is related in the present case to a combination of the aforementioned structural features. Also, as noted above, the structurally stiff grid resulting from the aforementioned mutual fitting of the substantially continuous axially-opposed tread portions, allows these portions to absorb without bending nor too much deforming, all the thermal-mechanical stresses imparted thereto during the tire rolling. See Specification, page 4, line 18 - page 5, line 1.

In the profiling shown in Fig. 8 and 8a, the width of the alternating grooves and ribs or projections radially running across the wheel plane is disclosed as being sufficiently small so as to trigger the technical effect of allowing deformation of each rubber rib or projection towards the next rib under the load in such a manner that a sharp projecting edge will always cut into the mud layer formed on the wet ground. See Sommer, page 1, right col., lines 8-17. The profiling shown by Sommer in Fig. 8 and 8a can by no means be read on the claimed "structurally stiff grid" in the context of the present invention. By contrast, Sommer clearly teaches away from the claimed "structurally stiff grid" and the specific arrangement of the transversal grooves and of the mutually fitted substantially-continuous tread portions, since it suggests to use a tread pattern

which triggers an opposite technical effect with respect to that achieved by the claimed tire, i.e. mobility of the tread portions defined between consecutive transversal grooves instead of rigidity. Thus, even by combining Sommer with any other reference on record contrary to any motivation to do so, one of ordinary skill in the art would have never arrived at the claimed tire having mutually fitted substantially continuous tread portions and forming a structurally stiff grid of elastomeric material portions.

c) Independent Claims 135 and 154

In regard to claims 135 and 154, the Examiner argues that at least part of the stresses must be discharged along the axis when Sommer's tire rolls. See May 2, 2005 Office Action, page 10. However, the Examiner has not pointed to any teaching in Sommer that discloses the stresses being imparted to the tread portion, let alone "discharged along the axis." Additionally, Sommer teaches that the ribs deform under the load of the wheel and the ribs lean against each other. See Sommer, page 2, col. 1, lines 52-59. Therefore, Sommer teaches away from stresses being discharged along the axis since in Sommer the stresses are not uniformly discharged. Accordingly, Sommer fails to teach the claimed "wherein the substantially-continuous tread portions are provided about an axis such that during tire rolling, stresses imparted to the substantially-continuous tread portions are discharged along the axis" as recited in claims 135 and 154.

d) Dependent Claims 40-53, 55-57, 112-125, 127-129, 136-149, and 151-153

Appellants submit that dependent claims 40-53, 55-57, 112-125, 127-129, 136-149, and 151-153 are also are patentable under 35 U.S.C. § 103(a) over Sommer in view of Great Britain '472, AAPA, Hargraves and Japan '109 at least due to the direct or indirect dependency of

claims 40-53, 55-57, 112-125, 127-129, 136-149, and 151-153 from one of independent claims 39, 58, 111, 130, and 135.

Thus, for at least the foregoing reasons, the 35 U.S.C. § 103(a) rejection of the dependent claims over Sommer in view of Great Britain '472, AAPA, Hargraves and Japan '109 is improper and Appellants request its reversal.

2. The Examiner Has Not Met His Burden In Establishing A Motivation To Combine The Teachings Of Sommer, Great Britain '472, AAPA , Hargraves And Japan '109

In the present case, the Examiner has failed to set forth sufficient evidence of a motivation to combine the teachings of Sommer with Great Britain '472, AAPA , Hargraves and Japan '109. Sommer nowhere indicates or suggests that the properties disclosed therein are in any way unsatisfactory, or in need of improvement, with respect to noise, traction, or resisting skid. To the contrary, Sommer indicates a tire with favorable properties, as indicated by the Examiner. See May 2, 2006 Office Action, page 8.

Furthermore, such a motivation to combine cannot be found in Great Britain '472, AAPA, Hargraves, or Japan '109 either. Nowhere in Great Britain '472, AAPA, Hargraves or Japan '109 is the desirability of modifying the tread pattern suggested.

The Examiner has failed to point to sufficient motivation in Sommer, Great Britain '472, AAPA, Hargraves or Japan '109 to make the numerous modifications to the references to arrive at the claimed invention. There is simply no teaching in the cited references that suggests the desirability of making the exact combination or modification proposed by the Examiner. The mere fact that the references can be modified is not sufficient to support a *prima facie* case of obviousness. *See* M.P.E.P. § 2143.01(III). The only motivation to combine the references appears to originate from the Appellants' specification. Thus, the Examiner's prima facie case of

obviousness is based on an impermissible hindsight analysis and the rejection is improper and should be withdrawn for at least this reason.

3. The Examiner Has Not Met His Burden Of Establishing A Reasonable Expectation of Success

The proposed modification to Sommer would critically alter the key features of the tire of Sommer rendering the same inoperable for its intended purpose. In sharp contrast to the claimed "substantially-stiff grid," Sommer specifically teaches using a tread that "may be sufficiently deformed" and therefore teaches away from using a "structurally stiff grid." See Sommer, page 2, column 1, lines 40-111. Thus, the Examiner has not set forth a prima facie case of obviousness is based and the rejection is improper and should be withdrawn for at least this reason.

D. CLAIMS 54, 126 AND 150 ARE PATENTABLE UNDER 35 U.S.C. § 103(A) OVER SOMMER IN VIEW OF GREAT BRITAIN '472, AAPA, HARGARVES, JAPAN '109, AND HIMURO

Appellants submit that dependent claims 60, 132, and 156 are patentable under 35 U.S.C. § 103(a) over Sommer in view of Great Britain '472, AAPA, Hargarves, Japan '109, and Himuro at least due to the direct or indirect dependency of claims 54, 126 and 150 from one of independent claims 39, 111 and 135. Himuro does not teach or suggest all the subject matter of independent claims 39, 111 and 135 and the Examiner does not rely on these references for such teachings. Himuro is relied on to teach circumferential grooves which cross inclined grooves as claimed in dependent claims 54, 126, and 150. See October 4, 2005 Office Action, page 14.

Thus, for at least the foregoing reasons, the 35 U.S.C. § 103(a) rejection of the dependent claims over Japan '408 in view of Great Britain '472, Japan '109, AAPA, Sommer and Himuro is improper and Appellants request its reversal.

E. CLAIMS 59-62, 131-134 AND 155-158 ARE PATENTABLE UNDER 35 U.S.C. § 103(A) OVER SOMMER IN VIEW OF GREAT BRITAIN '472, AAPA, HARGARVES, JAPAN '109, AND GUSPODIN

Appellants submit that dependent claims 59-62, 131-134 and 155-158 are patentable under 35 U.S.C. § 103(a) over Sommer in view of Great Britain '472, AAPA, Hargarves, Japan '109, and Guspodin at least due to the direct or indirect dependency of claims 59-62, 131-134 and 155-158 from one of independent claims 39, 130 and 154. Guspodin does not teach or suggest all the subject matter of independent claims 39, 111 and 135 and the Examiner does not rely on these references for such teachings. Guspodin is relied on to teach the use of different front and rear tires as claimed in dependent claims 60, 132 and 156. See October 4, 2005 Office Action at page 8.

Thus, for at least the foregoing reasons, the 35 U.S.C. § 103(a) rejection of the dependent claims over Japan '408 in view of Great Britain '472, Japan '109, AAPA, Sommer and Guspodin is improper and Appellants request its reversal.

F. CLAIMS 135-141, 146, 149, 152 AND 153 ARE PATENTABLE UNDER 35 U.S.C. § 103(A) OVER HOOVER IN VIEW MADEC

a) Independent Claim 135

With respect to the Examiner's rejection of claims 135-141, 146, 149, 152 and 153 under 35 U.S.C. § 103(a) as being unpatentable over Hoover in view of Madec, the Examiner alleges that Hoover discloses treads in which "a substantial part of stressing imparted to the ribs ... are discharged along the axis." See Office Action, page 4. Hoover fails to teach the claimed "substantially-continuous tread portion [ending] at an equatorial groove portion of a same transversal groove of an axially-opposed group of transversal grooves"(emphasis added). In Figure 1 of Hoover, however, the third rib from the top does not end at the same transversal groove as the other two ribs above it. In the January 22, 2007 Advisory Action, the Examiner

includes a marked-up version of Figure 1. See January 22, 2007 Advisory Action, page 2. This version is misleading since it places the ribs into groups without any basis. In the unaltered Figure 1 found in the patent, the third rib (the rib shown below B2, as marked by the Examiner, on the right-hand side) is properly part of the group above it and does not end at the same transversal grooves. Therefore, Hoover does not meet the claimed limitation.

Madec is cited for the disclosure of the curvature ratio (Office Action at 4) but also fails to teach the claimed "wherein each substantially-continuous tread portion ends at an equatorial groove portion of a same transversal groove of an axially-opposed group of transversal grooves" (emphasis added), as recited in claim 135.

Thus, for at least the foregoing reasons, the 35 U.S.C. § 103(a) rejection of the independent claim 135 is improper and Appellants request its reversal.

b) Dependent Claims 136-141, 146, 149, 152 And 153

Appellants submit that dependent claims 136-141, 146, 149, 152 and 153 are also are patentable under 35 U.S.C. § 103(a) over Hoover in view of Madec at least due to the direct or indirect dependency of claims 136-141, 146, 149, 152 and 153 from independent claims 135.

Thus, for at least the foregoing reasons, the 35 U.S.C. § 103(a) rejection of the dependent claims over Hoover in view of Madec is improper and Appellants request its reversal.

G. CONCLUSION

For the reasons given above, pending claims 39-62 and 111-154 are allowable, and Appellants respectfully request reversal of the outstanding rejections.

To the extent any extension of time under 37 C.F.R. § 1.136 is required to obtain entry of this Appeal Brief, such extension is hereby respectfully requested. If there are any fees due under 37 C.F.R. §§ 1.16 or 1.17 which are not enclosed herewith, including any fees required for

an extension of time under 37 C.F.R. § 1.136, please charge such fees to our Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: December 12, 2007

By: ______________________
Meredith H. Schoenfeld
Reg. No. 52,418

VIII. Claims Appendix

Claims 1-38 (canceled)

Claim 39 (previously presented): A tire for a vehicle, comprising:

a carcass structure;

a belt structure coaxially associated to the carcass structure; and

a tread coaxially extending around the belt structure;

wherein the tire comprises a curvature ratio not greater than 0.1,

wherein the carcass structure comprises a central crown portion and two sidewalls,

wherein each sidewall ends in a bead for anchoring the tire to a rim of a wheel,

wherein the tread comprises an equatorial zone and two shoulder zones,

wherein the equatorial zone extends on both sides of an equatorial plane of the tire,

wherein the two shoulder zones are disposed in axially-opposed positions with respect to the equatorial zone,

wherein the tread further comprises a plurality of transversal grooves,

wherein each transversal groove comprises an equatorial groove portion in the equatorial zone and a shoulder groove portion in one of the shoulder zones,

wherein the equatorial groove portion of each transversal groove has a uniform width;

wherein the shoulder groove portion of each transversal groove has at least a portion having a width smaller than the width of the equatorial groove portion;

wherein the transversal grooves are circumferentially distributed in groups alternately extending from the axially-opposed shoulder zones,

wherein the groups of transversal grooves define a plurality of substantially-continuous tread portions in the equatorial zone,

wherein each substantially-continuous tread portion ends at an equatorial groove portion of a same transversal groove of an axially-opposed group of transversal grooves,

wherein each of the transversal grooves ends at a predetermined distance from the equatorial groove portion of a longest transversal groove of the axially-opposed group of transversal grooves so that all of the transversal grooves end within the equatorial zone,

wherein the longest transversal groove of the axially opposed group of transversal grooves extends from one of said axially opposed shoulder zones and terminates at a location between the equatorial plane and the sidewall opposite said one of the axially-opposed shoulder zones, and

wherein each substantially-continuous tread portion comprises a width wider than an adjacent transversal groove.

Claim 40 (previously presented): The tire of claim 39, wherein the equatorial groove portion of at least one of the transversal grooves forms a first angle greater than or equal to 20° and less than or equal to 65° with respect to the equatorial plane of the tire.

Claim 41 (previously presented): The tire of claim 39, wherein at least one of the transversal grooves comprises an equatorial groove portion extending on both sides of the equatorial plane of the tire.

Claim 42 (previously presented): The tire of claim 39, wherein at least one of the transversal grooves comprises an equatorial groove portion extending in a substantially-

rectilinear way within a portion of the equatorial zone on one side of the equatorial plane of the tire.

Claim 43 (previously presented): The tire of claim 39, wherein at least one of the transversal grooves comprises an equatorial groove portion extending in a substantially-rectilinear way at least partly within one of the shoulder zones.

Claim 44 (previously presented): The tire of claim 39, wherein in each group of transversal grooves, the transversal grooves comprise equatorial groove portions at least partly substantially parallel to one another.

Claim 45 (previously presented): The tire of claim 39, wherein the equatorial groove portions of the groups of transversal grooves end at a distance less than or equal to 50% of a mean pitch of a tread pattern from the equatorial groove portion of the same transversal groove of the axially-opposed group of transversal grooves.

Claim 46 (previously presented): The tire of claim 39, wherein the equatorial groove portion of each transversal groove is connected to the shoulder groove portion by a substantially-curvilinear intermediate groove portion comprising a radius of curvature greater than or equal to 30 mm and less than or equal to 60 mm.

Claim 47 (previously presented): The tire of claim 39, wherein the shoulder groove portion of at least one transversal groove forms a second angle greater than or equal to 85° and less than or equal to 95° with respect to the equatorial plane of the tire.

Claim 48 (previously presented): The tire of claim 39, wherein the transversal grooves comprise a substantially-constant width greater than or equal to 5 mm and less than or equal to 10 mm along a tread portion substantially corresponding to an area of the tire that contacts the ground when the vehicle travels in a straight line.

Claim 49 (previously presented): The tire of claim 39, wherein the shoulder groove portion of the transversal grooves comprises an end groove portion comprising a width greater than or equal to 40% and less than or equal to 60% of a maximum width of the transversal grooves.

Claim 50 (previously presented): The tire of claim 49, wherein the end groove portion substantially lies within an area of the tire that contacts the ground when the vehicle travels around a curve or experiences drift rolling.

Claim 51 (previously presented): The tire of claim 39, wherein each of the groups of transversal grooves comprises three to seven transversal grooves.

Claim 52 (previously presented): The tire of claim 39, wherein the transversal grooves comprise a depth greater than or equal to 5 mm and less than or equal to 9 mm.

Claim 53 (previously presented): The tire of claim 39, wherein the transversal grooves of each of the groups of transversal grooves are longitudinally staggered with respect to the transversal grooves of the axially-opposed group of transversal grooves by a distance equal to about 50% of a mean pitch of a tread pattern.

Claim 54 (previously presented): The tire of claim 39, further comprising two longitudinal slots circumferentially extending on opposite sides of the equatorial plane of the tire along the shoulder zones.

Claim 55 (previously presented): The tire of claim 39, further comprising a plurality of transversal notches in the shoulder zones interposed between adjacent transversal grooves;

wherein the transversal notches comprise a depth greater than or equal to 3 mm and less than or equal to 4.5 mm, and

wherein the transversal notches comprise a width greater than or equal to 2 mm and less than or equal to 3.5 mm.

Claim 56 (previously presented): The tire of claim 39, wherein each of the groups of transversal grooves comprises a plurality of transversal grooves comprising a length decreasing along a rolling direction of the tire.

Claim 57 (previously presented): The tire of claim 39, wherein each substantially-continuous tread portion ends at the equatorial groove portion of the longest transversal groove of the axially-opposed group of transversal grooves.

Claim 58 (previously presented): A set of tires, comprising:

two tires for mounting on front wheels of a vehicle; and

two tires for mounting on rear wheels of the vehicle;

wherein the tires for mounting on the front wheels each comprise a first tread,

wherein the tires for mounting on the rear wheels each comprise a second tread,

wherein each tire comprises a curvature ratio not greater than 0.1,

wherein the first and second treads each comprise an equatorial zone and two shoulder zones,

wherein, in the first and second treads, the equatorial zone extends on both sides of an equatorial plane of a respective tire,

wherein, in the first and second treads, the two shoulder zones are disposed in axially-opposed positions relative to the equatorial zone of the respective tire,

wherein the first and second treads each further comprise a plurality of transversal grooves,

wherein, in the first and second treads, each transversal groove comprises an equatorial groove portion in an equatorial zone of the respective tire and a shoulder groove portion in one of the shoulder zones of the respective tire,

wherein the equatorial groove portion of each transversal groove has a uniform width;

wherein the shoulder groove portion of each transversal groove has at least a portion having a width smaller than the width of the equatorial groove portion;

wherein, in the first treads, the transversal grooves are circumferentially distributed in groups alternately extending from axially-opposed shoulder zones of the respective front tire, each group comprising three to five transversal grooves,

wherein, in the second treads, the transversal grooves are circumferentially distributed in groups alternately extending from axially-opposite shoulder zones of the respective rear tire, each group comprising five to seven transversal grooves,

wherein, in the first and second treads, the groups of transversal grooves define a plurality of substantially-continuous tread portions in the equatorial zone of the respective tire,

wherein, in the first and second treads, each substantially-continuous tread portion ends at an equatorial groove portion of a same transversal groove of an axially-opposed group of transversal grooves of the respective tire,

wherein, in the first and second treads, each of the transversal grooves ends at a predetermined distance from the equatorial groove portion of a longest transversal groove of the axially-opposed group of transversal grooves so that all of the transversal grooves end within the equatorial zone of the respective tire,

wherein the longest transversal groove of the axially opposed group of transversal grooves extends from one of said axially opposed shoulder zones and terminates at a location between the equatorial plane and the sidewall opposite said one of the axially-opposed shoulder zones.

Claim 59 (previously presented): The set of tires of claim 58, wherein:

the equatorial groove portion of one or more of the transversal grooves of at least one of the first treads forms a third angle substantially equal to 45° with respect to the equatorial plane of the respective front tire, and

the equatorial groove portion of one or more of the transversal grooves of at least one of the second treads forms a fourth angle substantially equal to 30° with respect to the equatorial plane of the respective rear tire.

Claim 60 (previously presented): The set of tires of claim 58, wherein the front tires comprise a chord shorter than a chord of the rear tires.

Claim 61 (previously presented): The set of tires of claim 58, wherein the first treads are provided with groups comprising three transversal grooves, and

wherein the second treads are provided with groups comprising five transversal grooves.

Claim 62 (previously presented): The set of tires of claim 58, wherein the shoulder groove portion of the transversal grooves of at least one of the tires comprises an end groove portion comprising a width greater than or equal to 40% and less than or equal to 60% of a maximum width of the transversal grooves of the at least one of the tires.

Claims 63 - 110 (not entered)

Claim 111 (previously presented): A tire for a vehicle, comprising:

a carcass structure;

a belt structure coaxially associated to the carcass structure; and

a tread coaxially extending around the belt structure;

wherein the tire comprises a curvature ratio not greater than 0.1,

wherein the carcass structure comprises a central crown portion and two sidewalls,

wherein each sidewall ends in a bead for anchoring the tire to a rim of a wheel,

wherein the tread comprises an equatorial zone and two shoulder zones,

wherein the equatorial zone extends on both sides of an equatorial plane of the tire,

wherein the two shoulder zones are disposed in axially-opposed positions with respect to the equatorial zone,

wherein the tread further comprises a plurality of transversal grooves,

wherein each transversal groove comprises an equatorial groove portion in the equatorial zone and a shoulder groove portion in one of the shoulder zones,

wherein the equatorial groove portion of each transversal groove has a uniform width;

wherein the transversal grooves are circumferentially distributed in groups alternately extending from the axially-opposed shoulder zones,

wherein the groups of transversal grooves define a plurality of substantially-continuous tread portions in the equatorial zone,

wherein each substantially-continuous tread portion ends at an equatorial groove portion of a same transversal groove of an axially-opposed group of transversal grooves,

wherein each of the transversal grooves ends at a predetermined distance from the equatorial groove portion of a longest transversal groove of the axially-opposed group of transversal grooves so that all of the transversal grooves end within the equatorial zone, and

wherein each substantially-continuous tread portion comprises a width wider than an adjacent transversal groove; and

wherein the substantially-continuous tread portions extend from said axially-opposed shoulder zones towards the equatorial plane of the tire to form a structurally stiff grid of elastomeric material portions fitted in with one another.

Claim 112 (previously presented): The tire of claim 111, wherein the equatorial groove portion of at least one of the transversal grooves forms a first angle greater than or equal to 20° and less than or equal to 65° with respect to the equatorial plane of the tire.

Claim 113 (previously presented): The tire of claim 111, wherein at least one of the transversal grooves comprises an equatorial groove portion extending on both sides of the equatorial plane of the tire.

Claim 114 (previously presented): The tire of claim 111, wherein at least one of the transversal grooves comprises an equatorial groove portion extending in a substantially-rectilinear way within a portion of the equatorial zone on one side of the equatorial plane of the tire.

Claim 115 (previously presented): The tire of claim 111, wherein at least one of the transversal grooves comprises an equatorial groove portion extending in a substantially-rectilinear way at least partly within one of the shoulder zones.

Claim 116 (previously presented): The tire of claim 111, wherein in each group of transversal grooves, the transversal grooves comprise equatorial groove portions at least partly substantially parallel to one another.

Claim 117 (previously presented): The tire of claim 111, wherein the equatorial groove portions of the groups of transversal grooves end at a distance less than or equal to 50% of a mean pitch of a tread pattern from the equatorial groove portion of the same transversal groove of the axially-opposed group of transversal grooves.

Claim 118 (previously presented): The tire of claim 111, wherein the equatorial groove portion of each transversal groove is connected to the shoulder groove portion by a substantially-curvilinear intermediate groove portion comprising a radius of curvature greater than or equal to 30 mm and less than or equal to 60 mm.

Claim 119 (previously presented): The tire of claim 111, wherein the shoulder groove portion of at least one transversal groove forms a second angle greater than or equal to 85° and less than or equal to 95° with respect to the equatorial plane of the tire.

Claim 120 (previously presented): The tire of claim 111, wherein the transversal grooves comprise a substantially-constant width greater than or equal to 5 mm and less than or equal to 10 mm along a tread portion substantially corresponding to an area of the tire that contacts the ground when the vehicle travels in a straight line.

Claim 121 (previously presented): The tire of claim 111, wherein the shoulder groove portion of the transversal grooves comprises an end groove portion comprising a width greater than or equal to 40% and less than or equal to 60% of a maximum width of the transversal grooves.

Claim 122 (previously presented): The tire of claim 111, wherein the end groove portion substantially lies within an area of the tire that contacts the ground when the vehicle travels around a curve or experiences drift rolling.

Claim 123 (previously presented): The tire of claim 111, wherein each of the groups of transversal grooves comprises three to seven transversal grooves.

Claim 124 (previously presented): The tire of claim 111, wherein the transversal grooves comprise a depth greater than or equal to 5 mm and less than or equal to 9 mm.

Claim 125 (previously presented): The tire of claim 111, wherein the transversal grooves of each of the groups of transversal grooves are longitudinally staggered with respect to the transversal grooves of the axially-opposed group of transversal grooves by a distance equal to about 50% of a mean pitch of a tread pattern.

Claim 126 (previously presented): The tire of claim 111, further comprising two longitudinal slots circumferentially extending on opposite sides of the equatorial plane of the tire along the shoulder zones.

Claim 127 (previously presented): The tire of claim 111, further comprising a plurality of transversal notches in the shoulder zones interposed between adjacent transversal grooves;

wherein the transversal notches comprise a depth greater than or equal to 3 mm and less than or equal to 4.5 mm, and

wherein the transversal notches comprise a width greater than or equal to 2 mm and less than or equal to 3.5 mm.

Claim 128 (previously presented): The tire of claim 111, wherein each of the groups of transversal grooves comprises a plurality of transversal grooves comprising a length decreasing along a rolling direction of the tire.

Claim 129 (previously presented): The tire of claim 111, wherein each substantially-continuous tread portion ends at the equatorial groove portion of the longest transversal groove of the axially-opposed group of transversal grooves.

Claim 130 (previously presented): A set of tires, comprising:

two tires for mounting on front wheels of a vehicle; and

two tires for mounting on rear wheels of the vehicle;

wherein the tires for mounting on the front wheels each comprise a first tread,

wherein the tires for mounting on the rear wheels each comprise a second tread,

wherein each tire comprises a curvature ratio not greater than 0.1,

wherein the first and second treads each comprise an equatorial zone and two shoulder zones,

wherein, in the first and second treads, the equatorial zone extends on both sides of an equatorial plane of a respective tire,

wherein, in the first and second treads, the two shoulder zones are disposed in axially-opposed positions relative to the equatorial zone of the respective tire,

wherein the first and second treads each further comprise a plurality of transversal grooves,

wherein, in the first and second treads, each transversal groove comprises an equatorial groove portion in an equatorial zone of the respective tire and a shoulder groove portion in one of the shoulder zones of the respective tire,

wherein the equatorial groove portion of each transversal groove has a uniform width;

wherein, in the first treads, the transversal grooves are circumferentially distributed in groups alternately extending from axially-opposed shoulder zones of the respective front tire, each group comprising three to five transversal grooves,

wherein, in the second treads, the transversal grooves are circumferentially distributed in groups alternately extending from axially-opposite shoulder zones of the respective rear tire, each group comprising five to seven transversal grooves,

wherein, in the first and second treads, the groups of transversal grooves define a plurality of substantially-continuous tread portions in the equatorial zone of the respective tire,

wherein, in the first and second treads, each substantially-continuous tread portion ends at an equatorial groove portion of a same transversal groove of an axially-opposed group of transversal grooves of the respective tire,

wherein, in the first and second treads, each of the transversal grooves ends at a predetermined distance from the equatorial groove portion of a longest transversal groove of the

axially-opposed group of transversal grooves so that all of the transversal grooves end within the equatorial zone of the respective tire,

wherein the substantially-continuous tread portions extend from said axially-opposed shoulder zones towards the equatorial plane of the tire to form a structurally stiff grid of elastomeric material portions fitted in with one another.

Claim 131 (previously presented): The set of tires of claim 130, wherein:

the equatorial groove portion of one or more of the transversal grooves of at least one of the first treads forms a third angle substantially equal to 45° with respect to the equatorial plane of the respective front tire, and

the equatorial groove portion of one or more of the transversal grooves of at least one of the second treads forms a fourth angle substantially equal to 30° with respect to the equatorial plane of the respective rear tire.

Claim 132 (previously presented): The set of tires of claim 130, wherein the front tires comprise a chord shorter than a chord of the rear tires.

Claim 133 (previously presented): The set of tires of claim 130, wherein the first treads are provided with groups comprising three transversal grooves, and

wherein the second treads are provided with groups comprising five transversal grooves.

Claim 134 (previously presented): The set of tires of claim 130, wherein the shoulder groove portion of the transversal grooves of at least one of the tires comprises an end groove

portion comprising a width greater than or equal to 40% and less than or equal to 60% of a maximum width of the transversal grooves of the at least one of the tires.

Claim 135 (currently amended): A tire for a vehicle, comprising:

a carcass structure;

a belt structure coaxially associated to the carcass structure; and

a tread coaxially extending around the belt structure;

wherein the tire comprises a curvature ratio not greater than 0.1,

wherein the carcass structure comprises a central crown portion and two sidewalls,

wherein each sidewall ends in a bead for anchoring the tire to a rim of a wheel,

wherein the tread comprises an equatorial zone and two shoulder zones,

wherein the equatorial zone extends on both sides of an equatorial plane of the tire,

wherein the two shoulder zones are disposed in axially-opposed positions with respect to the equatorial zone,

wherein the tread further comprises a plurality of transversal grooves,

wherein each transversal groove comprises an equatorial groove portion in the equatorial zone and a shoulder groove portion in one of the shoulder zones,

wherein the equatorial groove portion of each transversal groove has a uniform width;

wherein the transversal grooves are circumferentially distributed in groups alternately extending from the axially-opposed shoulder zones,

wherein the groups of transversal grooves define a plurality of substantially-continuous tread portions in the equatorial zone,

wherein each substantially-continuous tread portion ends at an equatorial groove portion of a same transversal groove of an axially-opposed group of transversal grooves,

wherein each of the transversal grooves ends at a predetermined distance from the equatorial groove portion of a longest transversal groove of the axially-opposed group of transversal grooves so that all of the transversal grooves end within the equatorial zone; and

wherein the substantially-continuous tread portions are provided about an axis such that during tire rolling, stresses imparted to the substantially-continuous tread portions are discharged along the axis.

Claim 136 (previously presented): The tire of claim 135, wherein the equatorial groove portion of at least one of the transversal grooves forms a first angle greater than or equal to 20° and less than or equal to 65° with respect to the equatorial plane of the tire.

Claim 137 (previously presented): The tire of claim 135, wherein at least one of the transversal grooves comprises an equatorial groove portion extending on both sides of the equatorial plane of the tire.

Claim 138 (previously presented): The tire of claim 135, wherein at least one of the transversal grooves comprises an equatorial groove portion extending in a substantially-rectilinear way within a portion of the equatorial zone on one side of the equatorial plane of the tire.

Claim 139 (previously presented): The tire of claim 135, wherein at least one of the transversal grooves comprises an equatorial groove portion extending in a substantially-rectilinear way at least partly within one of the shoulder zones.

Claim 140 (previously presented): The tire of claim 135, wherein in each group of transversal grooves, the transversal grooves comprise equatorial groove portions at least partly substantially parallel to one another.

Claim 141 (previously presented): The tire of claim 135, wherein the equatorial groove portions of the groups of transversal grooves end at a distance less than or equal to 50% of a mean pitch of a tread pattern from the equatorial groove portion of the same transversal groove of the axially-opposed group of transversal grooves.

Claim 142 (previously presented): The tire of claim 135, wherein the equatorial groove portion of each transversal groove is connected to the shoulder groove portion by a substantially-curvilinear intermediate groove portion comprising a radius of curvature greater than or equal to 30 mm and less than or equal to 60 mm.

Claim 143 (previously presented): The tire of claim 135, wherein the shoulder groove portion of at least one transversal groove forms a second angle greater than or equal to 85° and less than or equal to 95° with respect to the equatorial plane of the tire.

Claim 144 (previously presented): The tire of claim 135, wherein the transversal grooves comprise a substantially-constant width greater than or equal to 5 mm and less than or equal to 10 mm along a tread portion substantially corresponding to an area of the tire that contacts the ground when the vehicle travels in a straight line.

Claim 145 (previously presented): The tire of claim 135, wherein the shoulder groove portion of the transversal grooves comprises an end groove portion comprising a width greater than or equal to 40% and less than or equal to 60% of a maximum width of the transversal grooves.

Claim 146 (previously presented): The tire of claim 135, wherein the end groove portion substantially lies within an area of the tire that contacts the ground when the vehicle travels around a curve or experiences drift rolling.

Claim 147 (previously presented): The tire of claim 135, wherein each of the groups of transversal grooves comprises three to seven transversal grooves.

Claim 148 (previously presented): The tire of claim 135, wherein the transversal grooves comprise a depth greater than or equal to 5 mm and less than or equal to 9 mm.

Claim 149 (previously presented): The tire of claim 135, wherein the transversal grooves of each of the groups of transversal grooves are longitudinally staggered with respect to the transversal grooves of the axially-opposed group of transversal grooves by a distance equal to about 50% of a mean pitch of a tread pattern.

Claim 150 (previously presented): The tire of claim 135, further comprising two longitudinal slots circumferentially extending on opposite sides of the equatorial plane of the tire along the shoulder zones.

Claim 151 (previously presented): The tire of claim 135, further comprising a plurality of transversal notches in the shoulder zones interposed between adjacent transversal grooves;

wherein the transversal notches comprise a depth greater than or equal to 3 mm and less than or equal to 4.5 mm, and

wherein the transversal notches comprise a width greater than or equal to 2 mm and less than or equal to 3.5 mm.

Claim 152 (previously presented): The tire of claim 135, wherein each of the groups of transversal grooves comprises a plurality of transversal grooves comprising a length decreasing along a rolling direction of the tire.

Claim 153 (previously presented): The tire of claim 135, wherein each substantially-continuous tread portion ends at the equatorial groove portion of the longest transversal groove of the axially-opposed group of transversal grooves.

Claim 154 (currently amended): A set of tires, comprising:

two tires for mounting on front wheels of a vehicle; and

two tires for mounting on rear wheels of the vehicle;

wherein the tires for mounting on the front wheels each comprise a first tread,

wherein the tires for mounting on the rear wheels each comprise a second tread,

wherein each tire comprises a curvature ratio not greater than 0.1,

wherein the first and second treads each comprise an equatorial zone and two shoulder zones,

wherein, in the first and second treads, the equatorial zone extends on both sides of an equatorial plane of a respective tire,

wherein, in the first and second treads, the two shoulder zones are disposed in axially-opposed positions relative to the equatorial zone of the respective tire,

wherein the first and second treads each further comprise a plurality of transversal grooves,

wherein, in the first and second treads, each transversal groove comprises an equatorial groove portion in an equatorial zone of the respective tire and a shoulder groove portion in one of the shoulder zones of the respective tire,

wherein the equatorial groove portion of each transversal groove has a uniform width;

wherein, in the first treads, the transversal grooves are circumferentially distributed in groups alternately extending from axially-opposed shoulder zones of the respective front tire, each group comprising three to five transversal grooves,

wherein, in the second treads, the transversal grooves are circumferentially distributed in groups alternately extending from axially-opposite shoulder zones of the respective rear tire, each group comprising five to seven transversal grooves,

wherein, in the first and second treads, the groups of transversal grooves define a plurality of substantially-continuous tread portions in the equatorial zone of the respective tire,

wherein, in the first and second treads, each substantially-continuous tread portion ends at an equatorial groove portion of a same transversal groove of an axially-opposed group of transversal grooves of the respective tire,

wherein, in the first and second treads, each of the transversal grooves ends at a predetermined distance from the equatorial groove portion of a longest transversal groove of the axially-opposed group of transversal grooves so that all of the transversal grooves end within the equatorial zone of the respective tire; and

wherein the substantially-continuous tread portions are provided about an axis such that during tire rolling, stresses imparted to the substantially-continuous tread portions are discharged along the axis.

Claim 155 (previously presented): The set of tires of claim 154, wherein:

the equatorial groove portion of one or more of the transversal grooves of at least one of the first treads forms a third angle substantially equal to 45° with respect to the equatorial plane of the respective front tire, and

the equatorial groove portion of one or more of the transversal grooves of at least one of the second treads forms a fourth angle substantially equal to 30° with respect to the equatorial plane of the respective rear tire.

Claim 156 (previously presented): The set of tires of claim 154, wherein the front tires comprise a chord shorter than a chord of the rear tires.

Claim 157 (previously presented): The set of tires of claim 154, wherein the first treads are provided with groups comprising three transversal grooves, and

wherein the second treads are provided with groups comprising five transversal grooves.

Claim 158 (previously presented): The set of tires of claim 154, wherein the shoulder groove portion of the transversal grooves of at least one of the tires comprises an end groove portion comprising a width greater than or equal to 40% and less than or equal to 60% of a maximum width of the transversal grooves of the at least one of the tires.

IX. Evidence Appendix

No evidence is being relied upon herein by the Appellant.

X. Related Proceedings Appendix

No related proceeding decisions are relied upon herein by Appellants.